



**North Slope of Alaska ARM Facilities
Monthly Status Update
Sandia National Labs**

September 2017

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1 North Slope Facilities Management Executive Summary and Major Issues

This monthly report is intended to communicate the status of North Slope ARM facilities managed by Sandia National Labs.

Operations Team

- * Mark Ivey- ARM Alaska Sites Manager (SNL)
- * Fred Helsel- AMF3 Site Manager (SNL)
- * Dan Lucero- Barrow Site Manager (SNL)
- * Darielle Dexheimer- Tethered Balloon Operations (SNL)
- * Valerie Sparks- ARM Project Office (SNL)
- * Martin Stuefer- Rapid Response Team (UAF)
- * Randy Peppler- ARM DQ Office Manager (OU)

2 Budget

FY2017 Financials (as of September 29, 2017)

	August	YTD
Carryover funds	\$3,729,525	
Funds Allocated YTD	\$8,200,000	
Carryover plus YTD funds	\$11,929,525	
Cost, burdened amount	\$6,851,473	
Uncosted Funds	\$5,078,053	
Commits, burdened total	\$2,310,424	
Current fiscal year uncommitted funds	\$2,767,629	
Subsequent fiscal year (SFY)commits	\$326,794	
Total uncommitted funds, including SFY commits	\$2,440,835	
Fully Burdened Staff Costs	\$253,000	
Fully Burdened Contract Costs	\$463,000	
Fully Burdened Total Costs	\$716,000	\$6,851,000

3 Safety

AMF3- No incident/Injury

Barrow - No Incident/Injury

4 Instrument Status – Provided by Martin Stuefer

AMF3

INFORMAL AMF3 INSTRUMENT STATUS REPORT FOR September 22 - September 29, 2017

BRIEF STATUS OF INSTRUMENTS and site IN OLIKTOK AS OF 2017/09/29:

Facilities	Operational
Data Systems	Operational
Vehicles	Operational
Desktop Computers	Operational
SKYRAD - SKY Radiometer on Stand for downwelling	Operational
MFRSR - Multifilter Rotating Shadowband Radiometer	Operational
GNDRAD - Ground Radiometer on Stand for Upwelling	Operational
MFR3m - Multifilter Radiometer at 3m height	Operational
MAWS - Automatic Weather Station	Operational
MET - Surface & Tower Meteorological Instruments	Operational
CMH - Chilled Mirror Hygrometer	Operational
AMC - Soil, up/downwelling radiation measurements	Operational
ECOR - Eddy Correlation Flux System	Operational
MWR3C - Three Channel Microwave Radiometer	Operational
MPL - Micropulse Lidar	Operational
DL - Doppler Lidar	Operational
RL - Raman Lidar	Not Operational
CEIL - Vaisala Ceilometer	Operational
RWP - Radar Wind Profiler	Not Operational
KAZR - Ka ARM Zenith Radar	Operational as per warno.arm.gov
KaWSACR - Ka-Band Scanning ARM Cloud Radar	Not Operational as per warno.arm.gov
BBSS - Balloon Borne Sounding System	Operational
TSI - Total Sky Imager	Operational
AOS - Aerosol Observing System	Partly Operational

AOSMET - AOS Meteorological Measurements	Operational
CO - AOS Carbon Monoxide Analyzer	Operational
CPC - Condensation Particle Counter	Operational
CAPS - Cavity Attenuated Phase Shift Extinction Monitor	Not Operational
ACSM - Aerosol Chemical Speciation Monitor	Not Operational
HTDMA - Humidified Tandem Differential Mobility Analyzer	Not Operational
GHG - PICARRO	Operational
NEPH - Nephelometer	Operational
PSAP - Particle Soot Absorption Photometer	Operational
UHSAS - Ultra-High Sensitivity Aerosol Spectrometer	Operational
IMPACTOR - AOS Impactor	Operational
OZONE - AOS Ozone	Operational
TRACEGAS - AOS CO, N2O, H2O	Operational
CCN - Cloud Condensation Nuclei Particle Counter	Not Operational
MASC - Multi Angle Snowflake Camera	Not Operational
PIP - Precipitation Imaging Package	Operational
LPM - Laser Precipitation Monitor	Operational
GEONOR - Geonor Weighing Gauge	Operational
SRS - Snow Depth Sensor	Operational
AERI - Atmospheric Emitted Radiance Interferometer	Operational
CIMEL - Cimel Sunphotometer	Operational
MET-AIR - DataHawk Unmanned Aerial System	Operational
TBS - Tethered Balloon System	Operational

* Oliktok Instruments in Detail: *

INFRASTRUCTURE --- Facilities --- Operational, a New Set of Power Shelters Will Be Installed.

2017/09/30, CM-2017-AMF3-VSN-2124: For the installation of new power structures, technicians needed to install an alternate power plug-in source for the site. The new Hubbell 100W power adapter plug-in was installed to the emergency power transfer switch mounted to the rear of Warm Storage 1. Technicians powered down the site at 22:03 UTC through the Generator transfer switch, following and logging 'Lock Out Tag Out' procedures. Once the power source had been isolated, technicians opened and swapped out lines and the plug-in on the emergency power transfer switch. At 22:24 UTC the work had been performed, and power was restored to the site through the locked out Generator transfer switch. The 'Lock Out Tag Out' was logged in the site documentation folder with all the necessary signatures from those involved.

INFRASTRUCTURE --- Data Systems --- Operational.

2017/09/27, CM-2017-AMF3-VSN-2120: HDD S/N: NA7Q2COC was replaced with HDD S/N: NA78Y6WC. HDD S/N: NA7Q2COC will be shipped via USPS tracking # 9114 9014 9645 0952 9751 43.

2017/09/25, CM-2017-AMF3-VSN-2116: HDD S/N: NA7Q2CCQ was replaced with HDD S/N: NA7Q2CQC. HDD S/N: NA7Q2CCQ will be shipped via USPS tracking # 9114 9014 9645 0952 9751 43.

2017/09/23, CM-2017-AMF3-VSN-2114: HDD S/N: NA7JSCJ1 was replaced with HDD S/N: NA7Q2CCQ. HDD S/N: NA7JSCJ1 will be shipped via USPS tracking # 9114 9014 9645 0952 9751 50.

INFRASTRUCTURE --- Vehicles --- Operational.

INFRASTRUCTURE --- Desktop Computers --- Operational.

SKYRAD --- SKYRAD general --- Operational.

SKYRAD --- IRT --- Operational.

SKYRAD --- PIR 1 shaded --- Operational.

SKYRAD --- PIR 2 shaded --- Operational.

SKYRAD --- SOLAR Tracker --- Operational.

SKYRAD --- B&W diffuse --- Operational.

SKYRAD --- NIP --- Operational.

SKYRAD --- PSPg --- Operational.

SKYRAD --- MFRSR --- Operational. Shadow Band Needs to be Re-aligned When Sky Conditions Permit.

2017/09/28, CM-2017-AMF3-VSN-2122/DQPR-6502: The MFRSR datalogger, the CR1000, lost the program file due to a power surge on 2017/09/21. In response, Ben Bishop uploaded the program file 'MFRSR_V2.8.CR1' to the datalogger. The instrument is now operating under this program file.

2017/09/27, DQPR-6389: Christian does not see any shading on 9/3, so he submitted DQR D170927.1. The most recent DQPR status is "in progress - assignments."

2017/09/22, DQPR-6502/6185: From an email from David Oaks, a lot of the instruments at AMF3 were shut down by a power outage at AMF3 on 9/20/17 at around 1:40 UTC. All instruments were back online on stable power by 2:45 UTC on 9/20/17. Afterwards, collections was unable to connect to the SEBS, MFR3M, and MFRSR. The instruments appear to be running. Site ops and IT are already aware of this issue and correction is ongoing. These DQPRs were opened for better tracking of the solution.

2017/09/22, DQPR-6389: It is difficult to tell if the shading issue is ongoing. 9/3 looks to be the only somewhat clear day at the site. The most recent DQPR status is "open - requires action."

2017/08/18, DQPR-6389: Site ops will adjust the shading from the shadow-band when sky conditions permit. The oscillations are small, so they will be conservative with adjustments. The most recent DQPR status is "open - requires action."

2017/07/31, DQPR-6389: There looks to be a very slight shading issue from ~20:00 to 02:00. Adam Theisen posted a plot showing slight oscillations in the diffuse data.

2017/07/14, DQPR-6185: Adam added that the head_temp2 is still occasionally flagging. The most recent DQPR status is "waiting - for spares."

TIPTWR --- GNDRAD general --- Operational.

2017/09/28, DQPR-6479: Adam asked Mark what he thinks. There seems to be a larger difference between the ULH and the ULH calculated from the IRT data. The most recent DQPR status is "open - requires action."

2017/09/19, DQPR-6479: After coming back online (since 9/9/2017 at 19:20 UTC), the quality of the data is unknown. Adam These noted that the upwelling longwave data dropped down to negative levels from 9/9-9/10, and there have been some interesting features in the longwave after coming online. The most recent DQPR status is "open - requires action."

TIPTWR --- MFR3m --- Operational, but Collections Cannot Connect to Instrument.

2017/09/22, DQPR-6502: From an email from David Oaks, a lot of the instruments at AMF3 were shut down by a power outage at AMF3 on 9/20/17 at around 1:40 UTC. All instruments were back online on stable power by 2:45 UTC on 9/20/17. Afterwards, collections was unable to connect to the SEBS, MFR3M, and MFRSR. The instruments appear to be running. Site ops and IT are already aware of this issue and correction is ongoing. These DQPRs were opened for better tracking of the solution.

TIPTWR --- PIRgnd --- Operational.

TIPTWR --- IRTgnd --- Operational.

TIPTWR --- PSPgnd --- Operational.

MAWS --- Automatic Weather Station --- Operational.

2017/09/20, DQPR-6245: The MAWS had data dropouts and issues with wind speed and direction data. On 2017/09/11, site ops disconnected the sensor and lowered the MAWS tower. Site ops proceeded to replace WMT703 S/N: K0630005 with WMT703

S/N: K0630002. Site ops placed dielectric grease inside the connector prior to replacing in order to keep water out. The tower was then raised back into position and the instrument was powered on. Donna Holdridge submitted DQR D170920.1, and it is pending PRB review. The most recent DQPR status is "in progress - assignments."

2017/07/14, DQPR-6245: Adam asked if the cable was ever swapped out. The most recent DQPR status is "waiting - for spares."

2017/05/26, DQPR-6245: This issue looks like this was maybe resolved on 5/28, but we may want to leave the DQPR open longer to verify that data is being recorded and stored. Adam Theisen asked if the dropouts in the other variables are associated with this bad cable, or if they are due to a different issue. He posted a link to the Data Quality Explorer Metrics showing the data unavailability for that time period. The most recent DQPR status is "open - requires action."

MET --- METTOWER general --- Operational.

MET --- CMH --- Operational.

2017/09/28, DQPR-6477: Jenni added that data looks good and is ready to DQR (D170928.25).

2017/09/21, DQPR-6477/CM-2017-AMF3-VSN-2111: The CMH humidity and dew point became noisy and then dropped dramatically (site ops/David Oaks alert via email). Inspection found mirror covered in frost/ice. The mirror was cleaned and a power cycle completed, but this did not immediately fix the problem. The unit was repaired by the manufacturer in April 2017, and two spares are currently at the manufacturer for repair. Current data compare better after the 9/18 self-check, but are still noisy. David Oaks did the cleaning and calibration procedure provided by Jenni on 2017/09/21 between 23:10 - 23:45 UTC. Jenni added that the latest data look good, but she will monitor through a few daily self-checks to verify stability. The most recent DQPR status is "open - requires action."

MET --- Barometer --- Operational.

MET --- TEMPERATURE / HUMIDITY --- Operational.

2017/09/23, CM-2017-AMF3-VSN-2115: The site's HMT needed to be replaced. Site ops powered down the instrument, replacing HMT SN C3030027 with HMT SN C3030028. Site ops proceeded to return power to the instrument.

MET --- WIND INSTRUMENTS (SONIC) --- Operational.

MET --- PWD --- Operational.

MET --- AMC --- Operational.

2017/06/19, DQPR-6208: Ken will need to prepare and share data with the developer, and will ascertain the exact time ranges before submitting DQR (D170519.1). The most recent DQPR status is "in progress - assignments."

2017/05/13, DQPR-6208: Data after 20150822 for this site does follow the current DOD. The mentor will submit reformatted raw data for the period of 2014/09/14 to 2015/08/31 for the a1 level and b1 ingest so that the entire data record is based on the same DOD. Ken Reichl has been assigned DQR D170519.1. The most recent DQPR status is "in progress - assignments."

ECOR --- ECOR --- Operational.

2017/08/25, DQPR-6403: David Cook has an assignment to write a DQR. The most recent DQPR status is "in progress - assignments."

2017/08/11, DQPR-6403: Data was not available for more than 24 hours from 2017/07/23 at 04:00 UTC - 2017/07/25 at 12:59 UTC. The most recent DQPR status is "open - requires action."

ECOR --- SEBS --- Operational.

MW RADIOMETERS --- MWR3C --- Operational.

LIDAR --- MPL --- Operational.

LIDAR --- Doppler LIDAR --- Operational.

LIDAR --- Raman LIDAR --- Not Operational, Will Likely Not Return to Site.

2017/09/22, DQPR-5906: John Goldsmith commented that he does not believe that the OLI RL will be brought back online. He suggests that this DQPR be closed. Adam These has an assignment to write a DQR. The most recent DQPR status is "in progress - assignments."

2017/06/14, DQPR-5906: Todd Houchens and a laser tech were on-site from 6/10-11/2017 to repair the laser system, and to bring the system back up. Although the front-bench laser heads had been repaired, cracked fittings on the front bench (presumably freeze-related) prevented them from bringing up the front bench. Subsequently, it was discovered that the rear-

bench heads had also been damaged, and will require repair. New fittings have been ordered for the front bench, and we are working on having the rear-bench heads repaired. The most recent DQPR status is "waiting - for spares."

LIDAR --- CEIL --- Operational.

RADAR --- RWP --- Not Operational. Instrument Removed and Will Be Sent to SGP.

RADAR --- KAZR --- Operational as per warno.arm.gov .

2017/09/29, CM-2017-AMF3-VSN-2117/2123: A site technician found the radiate light not illuminated, so he logged into the software and executed the PACSI command file. The radiate light then illuminated, and he logged off the system.

2017/08/10, DQPR-6216: Joseph has an assignment to write an open-ended DQR to alert end-users until this issue is resolved. The rough start date of this issue is 2017/02/20, but please update that as needed. The most recent DQPR status is "in progress - assignments."

2017/05/19, DQPR-6216: The OLI KAZR has increased spectrum width values, which was determined to be a failing PLO in the RG assembly. The mentor is planning to replace the PLO during the next site visit. The most recent DQPR status is "waiting - for spares."

RADAR --- KaWSACR --- Not Operational as per warno.arm.gov .

2017/09/28, Telecon: Radar is being uninstalled. The pack up will be finished soon, and the SACR will be sent to Deadhorse.

2017/09/22, DQPR-5979: Joseph Hardin added that the SACR teardown will start today. When the SACR has been shut down, all the OLI SACR DQPRs/DQRs will be closed out. The most recent DQPR status is "in progress - assignments."

2017/09/18, Radar.arm.gov: The mentor is visiting the site to make a final power measurement that could not be completed during the last trip.

2017/08/14, DQPR-5705: Adam added that the missing/degraded data appears to still be occurring (rays dropping out), and the issue is not confined to the NE area anymore. He asked if this issue had been looked into recently. Joseph Hardin responded that this issue had not been looked into recently, and that any missing data confined to the NE area may have been due to chance. The most recent DQPR status is "in progress - assignments."

2017/08/10, DQPR-5704: Adam added that an increased noise floor occurred for a PPI scan on 2017/07/22, so he will keep this DQPR open. The most recent DQPR status is "in progress - assignments."

2017/07/07, Warno.arm.gov: Both Ka and W band radars have returned to operations after HVAC maintenance by radar technician Todd Houchens.

2017/06/20, DQPR-5979: During the site visit Joseph Hardin and others reinforced the waveguide. This should mitigate it some, but it is still a temporary fix. The most recent DQPR status is "in progress - assignments."

2017/01/27, DQPR-5704: An increased noise floor occurred twice on 2017/01/03. Prior to this occurrence, the last events were on 2016/12/29, when there was an increased noise floor three times.

2016/12/15, DQPR-5848: Starting on 2016/09/27 at 19:30 UTC, there looks to be an issue with how the ingest is setting the transition flag, and getting the sweeps for the HSRHI data. The number of sweeps in the HSRHI files start to shift between 1-3, when the shifting should not start until 4. Some examples of the azimuth and transition flags are posted in the DQPR.

2016/10/12, DQPR-5705: WSACR is sometimes showing some degraded/missing data. In the PPI (Plan Position Indicator) plots, there are missing data between 60-90 degrees. In the RHI (Range Height Indicator) plots, there are missing data throughout the scans. In the RHI, the background Zdr signal drops out, and the values in the echo region are high compared to bracketing scans.

Sonde --- BBSS --- Operational.

IMG --- TSI --- Operational.

AOS --- General --- Partly Operational. Some Systems Out/Shut Down.

2017/09/29, AOS Daily Checklist: The AOS shelter had lower than normal temperatures, so the floor heater was turned on. Site ops will monitor.

2017/07/28, DQPR-5858: Unless there are objections from Cindy or the PRB, Joshua King proposes that we abandon this DQPR. The most recent DQPR status is "in progress - assignments."

2017/06/23, DQPR-5858: Richard Wagener asked if anyone has looked at the VM's clock. Could it be that the time lags behind, and then jumps (resyncs), creating gaps in the time record? Richard suggests adding an assignment to Brent to look into possible system level causes for this behavior. The most recent DQPR status is "in progress - assignments."

AOS --- AOSMET --- Operational.

AOS --- CO --- Operational.

AOS --- CPC --- Operational.

2017/09/27, CM-2017-AMF3-VSN-2118: The weekly HEPA and flow checks for the CPC 3772 and CPC3776 needed to be performed. Site ops unplugged the inlet sample tube and connected a HEPA filter to it. The concentration numbers went down to 0 for both CPC units. Site ops proceeded to connect a dry cal unit into the CPC3772 to obtain a flow reading. The average reading was 936.74 cc/min. The inlet tube for the CPC3772 was connected once the tests were finished.

AOS --- CAPS --- Not Operational, Instrument at BNL Due to Incorrect Data.

2017/08/07, DQPR-5816: The red channel should be usable once the mentor can look at the entire OLI dataset. Related to this issue, the mentor has been informed by the manufacturer that a fix to the ongoing problem with the 3W unit regarding the need for a PSL calibration is being finalized. This fix will require swapping out the 3 DAQ cards. New cards are currently being created by a third party for the manufacturer (Aerodyne). Given this, the OLI CAPS will remain at BNL until the three new cards can be installed. The most recent DQPR status is "in progress - assignments."

2017/07/27, DQPR-5816: From the raw data record, it looks like the CAPS was back in service on 2017/06/26. Joshua King asked Ken Burk if the ingests can be turned back on. Arthur Sedlacek has an assignment to write a DQR. The most recent DQPR status is "in progress - assignments."

2017/05/08, DQPR-5816: The OLI CAPS is at BNL, where one of the sample pumps was replaced, the 3- DAQ cards were mounted with screws, and optics were cleaned. The system is currently undergoing a performance test, and as part of this check, some irregularities (signal fluctuations) were observed. The mentor is in contact with the manufacturer. Once the signal fluctuations are resolved, a PSL calibration will be performed prior to shipment back to OLI. This PSL calibration is necessary due to a firmware issue. While Aerodyne is testing a new card that corrects the issue, it is not yet ready for prime time. The most recent DQPR status is "in progress - assignments."

AOS --- ACSM-- Not Operational.

2017/07/28, DQPR-6123: The reinstallation was started, but stopped after the decision was made to close the site, and we examined the need to align, tune, and calibrate the instrument. Right now the instrument is not operating. The most recent DQPR status is "waiting - for spares."

AOS --- GHG-Picarro --- Operational, but Possible Issues with Multiport Box After Power Outages.

2017/09/22, CM-2017-AMF3-VSN-2113: There is a possible connectivity issue with the multiport box after the site power failure on 9/21/17. Site technicians shut down the GHG Picarro and restarted the system as per mentor request, following procedures outlined in the GHG Picarro manual. Site technicians will follow up with the instrument mentor to confirm that the issue is resolved.

2017/09/19, DQPR-6453: Ken Reichl submitted DQR D170906.1, and will edit the raw data shortly. Reprocessing is required for the b-level data. The most recent DQPR status is "in progress - assignments."

2017/09/05, DQPR-6453: Data was not available for more than 24 hours from 2017/08/25 at 18:41 UTC to 2017/08/28 at 23:03 UTC. IM Ken Reichl explained that the valve box lost serial communication with the Picarro computer, and b1 level data was not produced. The data could be salvaged if the raw data is edited. Ken plans on submitting raw data and a reprocessing request DQR (D170906.1). The most recent DQPR status is "open - requires action."

AOS --- HTDMA --- Not Operational, In Dryout Procedure for Winter Shutdown.

2017/09/28, CM-2017-AMF3-VSN-2121: The HT-DMA needed to be shut down for the winter as requested by the mentor. Site techs shutdown the system as outlined in the ops manual. They stopped any scans, turned off valves on the back of the instrument, turned off flow controls, vacuumed and compressed air supplies, software, and computers. Following these steps, the system was ready to be uninstalled.

AOS --- UHSAS --- Operational.

2017/09/08, DQPR-6462: Data is missing from 2-3 UTC on 08/16, returns for an hour or so, and then goes missing again until 10:00 UTC on 08/17. Janek added that data was saved by the instrument, but wasn't copied due to the Unit2 disk being full. Data will be copied over manually for collection. The most recent DQPR status is "open - requires action."

AOS --- NEPH --- Operational.

AOS --- IMPACTOR --- Operational.

AOS --- Ozone --- Operational, but Bench Temperature Out of Tolerance.

AOS --- TRACEGAS --- Operational, but Ambient Temperature Value Out of Tolerance.

AOS --- PSAP --- Operational.

AOS --- IMPACTOR --- Operational.

AOS --- CCN --- Not Operational. In Dryout Procedure for Winter Shut Down.

2017/09/27, CM-2017-AMF3-VSN-2119: The instrument needed to be shut down for preparation to be uninstalled and shipped. The site technician followed the shut down procedure laid out in the manual, performing the dry out procedure. The instrument was shut down after the dry out procedure and mentor confirmation.

Precip --- MASC --- Not Operational. Instrument at UAF for Annual Calibration.

Precip --- PIP --- Operational.

Precip --- LPM --- Operational, Working on Beginning Data Ingest to DMF Archives.

Precip --- GEONOR --- Operational, Working on Beginning Data Ingest to DMF Archives.

Precip --- SRS --- Operational.

Other --- AERI --- Operational.

Other --- CIMEL --- Operational.

Other --- DataHawk Unmanned Aerial System --- Operational, not a full time instrument.

Other --- TBS --- Operational. Sensor will not be running full time.

Barrow

INFORMAL NSA INSTRUMENT STATUS REPORT FOR September 22 - September 29, 2017

BRIEF STATUS OF INSTRUMENTS IN BARROW (C1) AS OF 2017/09/29:

Facilities	Operational
Data Systems	Operational
Vehicles	Operational
Desktop Computers	Operational
SKYRAD - SKY Radiometer on Stand for Downwelling	Operational
MFRSR - Multifilter Rotating Shadowband Radiometer	Operational
NIMFR - Normal Incidence Multifilter Radiometer	Operational
GNDRAD - Ground Radiometer on Stand for Upwelling	Operational
MFR10m - Multifilter Radiometer at 10m height	Operational
MET - Surface & Tower Meteorological Instruments	Operational
AMC - Soil, up/downwelling radiation measurements	Operational
ECOR-twr - Eddy Correlation Flux System	Operational
ECOR-PtBRW - Eddy Correlation Flux System	Not Operational
MWR - Microwave Radiometer	Operational
MWRP - Microwave Radiometer Profiler	Operational
MWRHF - Microwave Radiometer High Frequency	Operational
GVR - G-band Vapor Radiometer	Not Operational
GVRP - G-band Vapor Radiometer Profiler	Operational
HSRL - High Spectral Resolution Lidar	Operational
MPL - Micropulse Lidar	Operational
CEIL - Vaisala Ceilometer	Not Operational
DL - Doppler LIDAR	Operational
RWP - Radar Wind Profiler	Operational
KAZR - Ka ARM Zenith Radar	Operational as per warno.arm.gov
KaWSACR - Ka-Band Scanning ARM Cloud Radar	Not Operational as per warno.arm.gov
XSAPR - X-Band Scanning ARM Precipitation Radar	Not Operational as per warno.arm.gov
BBSS (Autosonde) - Balloon Borne Sounding System	Not Operational
AOS - Aerosol Observing System	Operational
CLAP - Continuous Light Absorption Photometer	Operational

CPC - Condensation Particle Counter	Operational	
NEPH - Nephelometer	Operational	
IMPACTOR - AOS Impactor	Operational	
TOWERCAM - 40m tower camera	Operational	
Great White Camera		Operational
TSI - Total Sky Imager	Operational	
AERI - Atmospheric Emitted Radiance Interferometer	Operational	
CIMEL - Cimel Sunphotometer	Operational	
LPM - Laser Precipitation Monitor	Operational	
SR50A - Snow Depth Sensor	Operational	
IOP - CAM	Operational	

* Barrow Instruments in Detail: *

INFRASTRUCTURE --- Facilities --- Operational.

INFRASTRUCTURE --- Data Systems --- Operational.

INFRASTRUCTURE --- Vehicles --- Operational.

INFRASTRUCTURE --- Desktop Computers --- Operational.

SKYRAD --- SKYRAD General --- Operational, Calibration Coefficients were Updated.

SKYRAD --- IRT --- Operational.

SKYRAD --- PIR 1 Shaded --- Operational.

SKYRAD --- PIR 2 Shaded --- Operational.

SKYRAD --- SOLAR Tracker --- Operational.

SKYRAD --- B&W diffuse --- Operational.

SKYRAD --- NIP --- Operational.

SKYRAD --- PSPg --- Operational.

SKYRAD --- MFRSR --- Operational, but Shading Problems.

2017/09/28, DQPR-6297: After Adam found shading in data between 22:00 - 24:00 UTC, Christian Herrera suggests that site ops check the shading again. The most recent DQPR status is "open - requires action."

2017/09/20, DQPR-6297: Adam added that it looks like the MFRSR dropped out on 2017/09/20 from 16:40 - 17:15 UTC. The most recent DQPR status is "in progress - assignments."

2017/08/28, DQPR-6297: Christian Herrera is wondering if there has been a clear day yet for setting banding. Walter responded that it has been overcast for some time, with marginal to no sunlight. Currently it is raining and snowing in Barrow.

2017/07/28, DQPR-6354: Adam Theisen posted a plot showing the shading from 2017/07/27. The most recent DQPR status is "open - requires action."

2017/07/21, DQPR-6297/6354: Christian Herrera asked to check the shading band position. Walter is awaiting a sunny day to perform the check.

2017/07/07, DQPR-6297: Christian Herrera has an assignment to write DQR D170707.3. Christian thinks that he narrowed the start date to 3/18 when the MFRSR first started showing a definite signal in the FFT. It increased in intensity over time, but became more intense on 5/28. The most recent DQPR status is "in progress - assignments."

SKYRAD --- NIMFR --- Operational.

TIPTWR --- GNDRAD general --- Operational.

TIPTWR --- MFR10m --- Operational.

TIPTWR --- PIRgnd --- Operational.

TIPTWR --- IRTgnd --- Operational.

TIPTWR --- PSPgnd --- Operational.

MET --- METTOWER general --- Operational.

MET --- CMH --- Operational.

MET --- Barometer --- Operational.

MET --- TEMPERATURE / HUMIDITY --- Operational.

2017/09/22, DQPR-6458: The latest RH data look good, so Jenni Kyrouac has been assigned DQR D170922./Users/macbook2010/Desktop/20170929.txt4.

2017/09/07, DQPR-6458: The RH (rh_mean) looks to be saturating at times and jumping over 100% (see attached image on DQPR). The T/RH sensor is scheduled to be replaced next week for the annual calibration. Walter noted that current conditions are gusty and rainy, which are likely affecting the RH read. The most recent DQPR status is "waiting - for spares."

MET --- WIND INSTRUMENTS (SONIC) --- Operational.

MET --- PWD --- Operational.

MET --- AMC --- Operational.

2017/09/29, DQPR-6207: Ken Reichl formatted data to unify the entire record with the same raw data format. All data for the entire record (multiple raw and b1 data) will be copied to a DMF research system computer, but he is awaiting to gain access to build a directory to put raw data in. A BCR will be submitted to create a new DOD version in order to change all temperature valid_min from -10 degC to -40 degC. Once that has been released to production, the reprocessing should be done via the attached DQR. Andrew Moyes will be taking over this process as the mentor, as Ken will be leaving LBNL and ARM as of 9/29/2017. The most recent DQPR status is "in progress - assignments."

2017/06/19, DQPR-6207: Raw data needs to be prepared and shared with the developer. Over the years, some sensor cables have been switched around with inputs to the logger. The most recent DQPR status is "in progress - assignments."

2016/10/10, DQPR-5694: Joshua King adds that vmc from sensor 4 was missing from 14:30 UTC 2016/07/12- 15:30 UTC 2016/09/25. Since returning 2016/09/25, vmc has been decreasing to below 0.3. He is asking mentors if they have thoughts on what is causing this behavior. An attached image can be found on the DQPR page. IM Ken Reichl responds that this is an issue outlined in DQPR-4793 for the analogous site, OLI. The instrument reports soil data as 9999999, or a non-numerical character (for data SGP) for soil systems. The AMC systems may report missing data during warm seasons for instruments that are not sufficiently calibrated. The OLI datastream has an open-ended DQR D151023.3. Ken asks if he should make one for the NSA data as well, and is the DQR system the best way to characterize this issue?

ECOR --- ECOR-twr --- Operational.

ECOR --- ECOR-Pt. Barrow --- Not Operational, End of Season.

MW RADIOMETERS --- MWR --- Operational.

MW RADIOMETERS --- MWRP --- Operational.

MW RADIOMETERS --- MWRHF --- Operational (External Noise Interference).

2016/09/30, DQPR-4165: The 150 GHz channel was showing high noise levels probably because of an external source of interference. Adam inquires if there is a path forward to solve the interference issues? The current DQPR status is "in progress- assignments", and it is open-ended. DQRs D140610.1 and D160426.3 have been reviewed and accepted by the PRB.

MW RADIOMETERS --- GVR --- Not Operational. Instrument Shipped to Prosensing for Refurbishment.

2017/07/07, DQPR-6274: The contract with Prosensing has been approved, so the mentor requests that the GVR be packed and shipped there. The most recent DQPR status is "waiting - for spares."

MW RADIOMETERS --- GVRP --- Operational.

LIDAR --- HSRL --- Operational.

2017/09/20, DQPR-6201: Adam commented that he still has not received the latest data (01 or a1 levels). The most recent DQPR status is "waiting - for spares."

2017/09/01, DQPR-6201: The mentor was on-site working on the instrument from 8/13 - 8/19. The instrument appeared to be working, but now there is an error on the system. Walter is waiting for further direction. The most recent DQPR status is "waiting - for spares."

2017/06/23, DQPR-6201: Adam checked the data on the DMF, and it appears that we are receiving raw (00-level) data, but it is not being processed any further. Adam thinks we will just need a missing data DQR when the HSRL is back online. The most recent DQPR status is "waiting - for spares."

2017/05/22, DQPR-6201: The HSRL laser stopped to work properly. While we await the laser repair, the system will operate in a reduced data mode (housekeeping only), with the laser off since May 10th due to a seed laser failure. The rep rate of data is much less as a result, and any processed form would be empty or invalid.

LIDAR --- MPL --- Operational. A New MPL has Been Sent to NSA, and Will Be Installed Upon Receipt.

2017/09/29, DQPR-6328: Donna Flynn submitted a summary of her findings of the MPL system at NSA. Richard Coulter added that afterwards that it is not likely that applying the after pulse correction created negative backscatter, but it is more likely the background value that is causing any negative values. The SNR is a highly variable variable, affected by multiple elements, and is and not likely to be useful for system evaluation. The afterpulse measurement process is well established and works well when done properly. More discussion is needed, and the details can be found on the DQPR page. The most recent DQPR status is "waiting - for spares."

2017/09/13, DQPR-6328: There are no spare MPLs right now. We are planning on sending the NSA MPL for repairs once we have a replacement (probably next month). So Paysar's suggestion at this point is to wait until the replacement gets to NSA, then we will be able to properly identify the affected periods. The most recent DQPR status is "waiting - for spares."

2017/08/02, DQPR-6328: DQR D170802.9 has been submitted for AWR.M1. When start and end dates for NSA.C1 problems are identified, this DQR can be used as a template. The most recent DQPR status is "open - requires action."

2017/07/07, DQPR-6328: During the investigation into the MPLCMASK problem, it was determined that there are potential problems with the NSA C1 and AWR M1 polarizations. From Donna Flynn: The AWR.M1 instrument polarization is off. The values for the linear depolarization ratio are too high. If you compare the water clouds at both AWR.S1 (reasonable values) and AWR.M1(high) on 20151210, this is evident. Additionally, the NSA.C1 data looks suspicious. I have only looked at a few days, but I have found poor agreement with HSRL and clear sky profiles when compared to Rayleigh, which suggests either an overly strong afterpulse or a collimation problem. The most recent DQPR status is "open - requires action."

LIDAR --- CEIL --- Not Operational (Blower Failure). Will Be Sent to Vendor for Repair.

2017/08/11, DQPR-6153: The blower failure warning returned on 2017/08/11 at 03:00. Victor will get an RMA for the return of the ceilometer for repair. The most recent DQPR status is "waiting - for spares."

2017/08/09, DQPR-6153: Vaisala recommends first ruling out a contaminated and/or scratched window, so IM Victor Morris asks that site ops please thoroughly clean the optics window and examine for scratches that may appear like spider webs under the surface. Site ops should contact Victor when finished, and he will remotely perform a window calibration, or follow the procedure in the Vaisala CL31 User's Guide, Chapter 6, under "Periodic maintenance / Window Cleaning / Calibration." The most recent DQPR status is "waiting - for spares."

2017/07/13, DQPR-6153: The blower (SN K0810010) that apparently failed on 3/19 was tested at SGP with the following findings: Craig tested the blowers (SNs K0810010 and F0910001 [from AWR/M1]), and both of them seem to be working. The fans definitely work and they are also putting out heat; however, it's not much. According to the manual, they are only 175W heaters. The current draw was 1.6A. Victor Morris supplied this information on the open Vaisala support ticket, and they recommend returning the CL31 for repair. The most recent DQPR status is "waiting - for spares."

LIDAR --- Doppler LIDAR --- Operational. Blower Failure on 2017/09/20.

RADAR --- RWP --- Operational.

RADAR --- KAZR --- Operational as per warno.arm.gov.

2017/06/12, warno.arm.gov: The RDS1 power supply was replaced and the signal processor is operational. The system will be taken out for maintenance for a short time to replace a fan.

RADAR --- KaWSACR --- Not Operational as per warno.arm.gov.

2017/09/28, CM-2017-NSA-VSN-4431: There is currently a high wind advisory, so Walter set mechanical locks on the SACR pedestal.

2016/03/12, DQPR-4041: After much coordination with the pedestal manufacturer and while working with the instrument mentors, the azimuth DSA was re-programmed. Once a reprogrammed Azimuth DSA was installed and verified the Elevation DSA was also found to be faulty. It was replaced with another unit and the system now accepts azimuth and elevation commands. The most recent DQPR status is "waiting- for spares."

RADAR --- XSAPR --- Not Operational as per warno.arm.gov.

2017/02/16, BiWeekly Telecon: Andrei is looking at parts replacement/repairs/upgrade for June.

2016/08/04, DQPR-4841: The elevation servo amplifier failed, the radar can not scan in elevation. The radar will be upgraded sometime, and will be turned off until then. A DQR was submitted and reviewed by PRB. The DQPR status is "in progress" due to it being open-ended. Adam Theisen's DQR D160719.1 has been reviewed and accepted by the PRB.

Sonde --- BBSS (Autosonde) --- Not Operational, Manual Launches.

2017/09/22, Email from Walter/DQPR-6470: Autosonde Launcher Upgrade Finished on 2017/09/15, but the computer needs some work and will be sent to Tim Grove at SGP for configuration. Currently, there are no new sondes to launch from it. Launches will be manual (S01) until new sondes are received. The most recent DQPR status is "waiting - for spares."

2017/09/14, DQPR-6470: S01 system is in daily use while C1 Autosonde is upgraded. Flights were losing UHF signal from sonde early and causing termination. Donna Holdridge asked site ops to also check all GPS antenna connections as well. Site Ops replaced the UHF antenna and performed a test launch on 9/15/2017 at 0009GMT. Data collection from the sondes are now complete throughout launch, and the issue is resolved. Once the last files are renamed, and the ingests enabled, this DQPR can be closed without a DQR.

AOS --- General --- Operational.

2017/08/22, DQPR-6425: The NSA AOS system will be serviced from the period of 2017/08/22 at 00:00 UTC to 2017/08/26 at 00:00 UTC. The most recent DQPR status is "open - requires action."

AOS --- AETH --- Operational.

AOS --- CLAP --- Operational.

2017/07/06, DQPR-6251: Per comments in connected DQPR 6252, offline discussion is ongoing with Annette and Anne offline on how best to proceed.

2017/05/31, DQPR-6251: This DQPR is being submitted as a placeholder for 2 periods of missing data identified through data review EWO 21024: 1. DQR D160927.8 covers a CLAP power supply failure from 08/25 - 09/19/2016, but we don't have ingested data again until 05:00 UTC 10/24/2016. We need another DQR for the 09/19 - 10/24/2016 time period. 2. Another missing data gap from 00:00 UTC 12/01 - 18:00 UTC 12/06/2016. Joshua King omitted start/end dates from DQPR so that DQRs can easily be assigned/filled out for these periods. The most recent DQPR status is "in progress - assignments."

AOS --- CPC --- Operational.

2017/06/30, DQPR-6252: Joshua King has reviewed the reprocessed data from Annette and Anne, and he is coordinating with them offline to determine a path forward. The most recent DQPR status is "in progress - assignments."

AOS --- NEPH --- Operational, but Some Missing Data.

2017/09/22, DQPR-6504: Data is missing on the 30th minute of the hour 1-3 times a day for most days starting on 7/24. This problem appears similar to earlier issues with NSA AOS instruments. See DQR D170818.2. The most recent DQPR status is "open - requires action."

AOS --- IMPACTOR --- Operational.

IMG --- TOWERCAM --- Operational.

2017/09/26, CM-2017-NSA-VSN-4430: The tower camera had been offline and inaccessible since it's relocation earlier in September. In response, the camera boom was lowered at 21:30, jumper cables were attached to the camera power box, and the power box was opened to access the powering issue. Telayna switched the camera input and output, powered the supply through a different outlet, and adjusted cables for a better fit within the box. She pinged the camera from a computer in the same network, and was able to access the camera webpage. The power box was closed back up, and the boom was raised. Connection was attempted once more after the boom was raised back up--the connection failed until an instrument computer within the same network sent a ping to the camera. Then it became possible to directly connect to the camera webpage. Next year during tower maintenance, the bottom power box screw should be retapped or replaced. Site ops will monitor for wireless issues.

IMG --- Great White Camera --- Operational.

IMG --- TSI --- Operational.

Other --- AERI --- Operational.

Other --- CIMEL --- Operational.

Other --- LPM --- Operational.

Other --- SR50A --- Operational.

IOP --- CAM --- Operational.

5 North Slope Facilities

AMF3

Current and Upcoming Site Visits

Fred Helsel, Bruce Edwardson-SNL	09/28-10/10	Power shelter upgrade
Thomas Watson, Robert Bullard-BNL	10/02-06	Tof-ACSM calibration
Dari Dexheimer and crew-SNL	10/12-24	ARM and AALCO IOP TBS ops
Valerie Sparks, Erika Roesler, Ben Hillman-SNL	10/12-15	Observe TBS ops

Current and Upcoming IOPs

De-Icing Comparison Experiment (DICE)

AXIS camera was relocated for Chuck Long's De-Icing Comparison Experiment (DICE).

This will enable Chuck to observe the AMF3 radiometers. Martin Stuefer setup a script to take a photo every 10 minutes they can be viewed at: http://nanuna.gi.alaska.edu/media/cam/oli_psp/

http://nanuna.gi.alaska.edu/media/cam/oli_skyrad/

Snowflake Settling Speed Experiment: MASC (upcoming)

Site Safety

None

Unmet Needs

We are running on leased diesel generators while other options are explored.

Capstone microturbines are currently at Horizon Power Systems in Farmington, NM for repair. They should be ready for shipping back to AMF3 the first week of October.

Site News



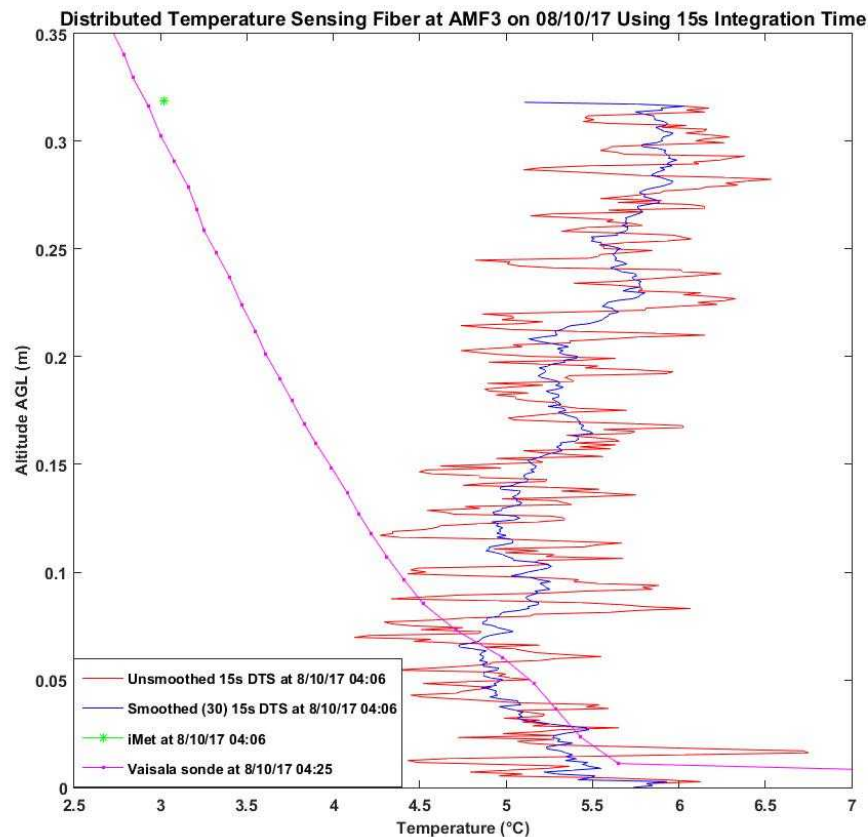
AMF3 SACRII pedestal was removed and will be stored for the winter in Deadhorse.

Site Staffing Issues

Josh Remitz has given his notice; this will be his last rotation. He will be missed.

Tethered Balloon Operations

Analysis continued on August 2017 TBS and JUBA IOP data, in particular on the use of the rotary joint with the DTS measurements. The rotary joint is required in order to collect data while the balloon is in motion. The ground was identified with a heat tray during the August JUBA IOP, which acted to heat the DTS fiber and make the temperature measurements offscale high, as shown below.



It is yet to be determined if the measurement accuracy issue is completely due to the use of the heat tray, or if it could be due to loss within the joint itself. Towards that end DTS measurements were taken at Oliktok Point in September, at the Sandia Arctic Site, in order to determine the effect of the FORJ on the measurements. Two different DTS systems (Sensornet and Silixa) were operated while comparing FORJ and non-FORJ measurements in a glycol bath at the Sandia site. 30s, 1 minute, and 2 minute measurements were taken from both DTS systems with two FORJ fibers and one non-FORJ fiber in order to understand the relative accuracy of each DTS system and the impact of the FORJ on measurement accuracy. Accuracy should improve with longer measurement time. Tests were also conducted while rotating and not rotating the FORJs in order to understand if the loss through the joint, and thus the measurement accuracy, is affected when the joint is in motion. Analysis of this test is ongoing.

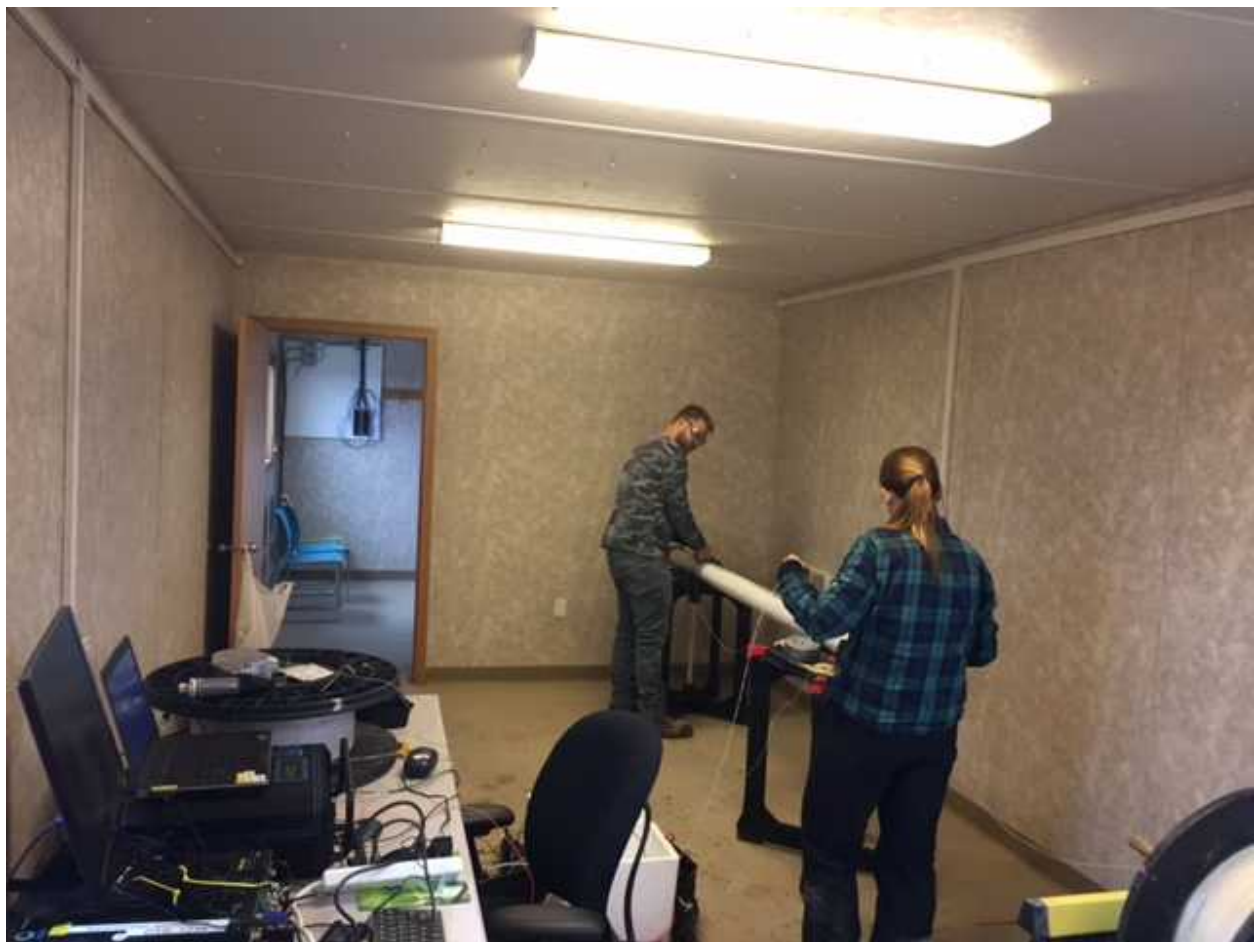


Figure 1: DTS testing in glycol tube bath at Sandia Arctic Site

A Sandia-funded test campaign was conducted around Oliktok Point on a 50' vessel called the R/V Ukpik from 9/21 – 9/28. Small tethered balloons were flown, submerged DTS measurements were collected, water-surface DTS measurements were collected, and simulated UAS water retrievals were conducted. Many details in regard to the logistics and operational considerations involved in conducting operations from a boat on the North Slope were learned.

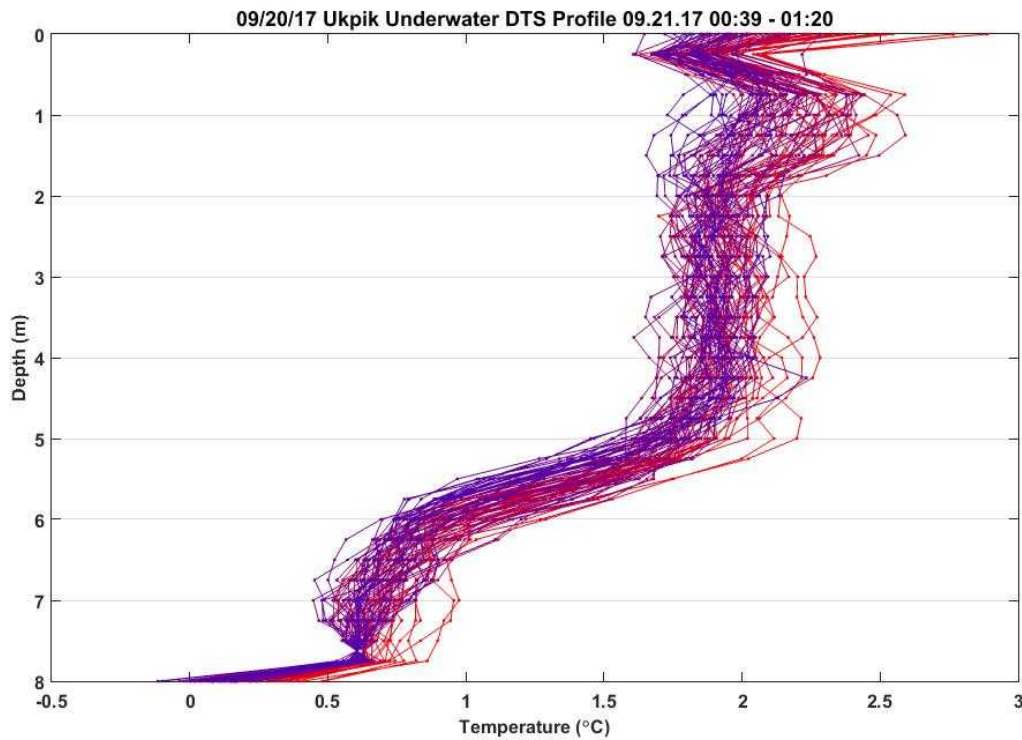


Figure 2: Submerged DTS profile from 09/20. Color goes from red to blue as time passes. Each temperature trace is a 30s interval. The spike in temperature around 1m could likely be from the Ukpik's exhaust.

Barrow

Current and Upcoming Site Visits

Ben Hillman, Erika Roesler-SNL	10/15-16	Site survey for future IOP
Valerie Sparks-SNL	10/15-18	Annual Firearms exchange, site support
Brian Phillips-SNL	10/16-18	Autosonde maintenance

Current and Upcoming IOPs

SNPP/NPOESS Ground Truth Sonde Launch, Phase 5 – Started Oct 1, 2016

Seismic Probes for NSF– POP Ends, Oct 31, 2018

Multi-faceted Approach to Characterizing Potential Radiative Forcing on the NSA using Two Coastal Sites, Baylor – June 2016 – Sept 2017.

OYES-Electric Field Study, Texas A&M, Started June 2017

Global Navigation Satellite System (GNSS) – Started July 2017

NSA Precipitation Instrumentation – Moved to tower location August 2017

Global Navigation Satellite System (GNSS) – started July 2017

Site Issues

Red Ranger still not operational, sent in for repair, needs new engine.

Unmet Needs

Need to move insulated connex to auto-launcher, and move manual balloon operations to this location. Will try and schedule for September - October timeframe.

Site Upgrades

None

Site Safety

None

Site Staffing Issues

None

Distribution

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